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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,560	02/11/2002	Hsing-Yao Chen	60	5053
7590	03/01/2004		EXAMINER	
EMRICH & DITHMAR Suite 3000 300 South Wacker Drive Chicago, IL 60606			GUHARAY, KARABI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/073,560	CHEN ET AL.	
Examiner	Art Unit		
Karabi Guharay	2879		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on Amendment, filed on 11/20/03.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-15 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 15 is/are allowed.

6)  Claim(s) 1-12 is/are rejected.

7)  Claim(s) 13 and 14 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 20 November 2003 is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date . . . . .  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_ .

Amendment, filed on 11/20/2003 has been considered and entered.

Amendment of Fig 1 has been approved and entered.

Amendments of drawing and the specification overcome the objection to the drawings.

Amendment of claim 14 overcomes the rejection of claim 14 under 35 U.S.C. 112 second paragraph.

Amendment of claim 15 overcomes the objection to the claim 15.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Kimiya et al. (US 6236152).

Regarding claim 1, Kimiya et al. disclose an electron gun for a cathode ray tube comprising a cathode (KR, KG, KB of Fig 4A, lines 55-64 of column 8) for providing energetic electrons; a beam forming region, BFR, (first grid G1, second grid G2, third grid G3) aligned with the cathode and disposed intermediate cathode and the display screen (3 of Fig 1), BFR includes plural spaced first charged grids (G1, G2, G3) each having one or more first aligned apertures (Fig 4A, lines 24-36 of column 4) wherein the

electrons are directed through the first aligned apertures, increases in cross section in proceeding from BFR (lines 53-59 of column 7), and an electrostatic lens (auxiliary electron lens and extended electric field lens) disposed intermediate BRF and the display screen including plural second grids ( G5, GM, and G6) charged by a respective focus voltage (see Fig 4B, lines 2-16 of column 3, & lines 41-48 of column 9), each of the second grids having one or more second aligned apertures through which electron beams are directed for focusing on the display screen (see Fig 7A) wherein the second aligned apertures decrease in size in proceeding in a direction from the display screen toward BFR (lines 1-8 of column 10, and lines 34-41 of column 11). Further functional recitation of claimed structure is inherent, under the principles of functional inherency, since it is elementary that mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Additionally, where the Patent office has the reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. *In Re Swinehart*, 169 USPQ 226(CCPA 1971). Thus, the functional recitation of "for increasing focusing sensitivity of said electrostatic lens on the electron beam while decreasing said focus voltage " is taught by Kimiya et al. under the principles of functional inherency.

Regarding claim 2, Kimiya et al. disclose a color CRT (line 44 of column 8) having three cathodes (KB, KR, KG) for providing three groups of energetic electrons

(lines 15-18 of column 4) and each of first grids includes three apertures each adapted to receive and form a respective group of energetic electrons into a narrow beam (see Fig 3A).

Regarding claim 3, Kimiya et al. disclose that three apertures in each of the first charged grids are arranged in an in-line array (see Fig 4A, line 16 of column 4).

Regarding claim 4, Kimiya et al. disclose that BFR includes a first grid G1 (control grid), a second grid G2 (accelerating grid G2) and a bottom portion of third grid G3 (lines 25-30 of column 4).

Regarding claim 5, Kimiya et al. disclose that the electrostatic lens (auxiliary electron lens and extended electric field lens) includes a top portion of G3 (lines 2-5 of column 3), and plural spaced aligned focus grids (G5, GM, G6) disposed intermediate said third grid G3 and the display screen (Fig 4A).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimiya et al. as applied to claim 1 above, and further in view of Kimiya et al. (US 6339293).

Regarding claim 6, Kimiya ('152) discloses all the limitations of claim 6, except for a dynamic quadrupole lens for compensating astigmatism of the electron beams on the display screen.

However, Kimiya ('293) teaches a dynamic quadrupole lens (multiple four pole lens QL1, line 46 of column 8), formed by applying AC voltage  $V_d$ , in synchronism with the deflection magnetic field, to the first, second, third and fourth grid (lines 20-26 of column 4, see Fig 7B) for compensating for dynamic astigmatism (see lines 4-6 of column 1).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include dynamic voltage (AC voltage), in synchronism with the deflection magnetic field to the grids to form dynamic quadrupole lens QL1, as disclosed by Kimiya ('293), in the device of Kimiya ('152), in order to compensate for astigmatism of the electron beams on the display screen.

Regarding claim 7, Kimiya ('293) discloses that the dynamic quadrupole lens includes two or three charged elements (lines 19-26 of column 4). The same reason for combining art as in claim 6 applies.

Regarding claim 8, Kimiya ('152) discloses all the limitations of claim 8, except for electrostatic lens includes plural dynamic quadrupole lens disposed in a spaced

manner between BFR (beam forming region) and the display screen for compensating for astigmatism of the electron beams on the display screen.

However, Kimiya ('293) teaches an electrostatic lens (EL, see Fig 5 & Fig 6) and a plural dynamic quadrupole lens (four pole lens QL1, lines 33-40 of column 4) disposed in a spaced manner (see Fig 15, lines 30-32 of column 10) for compensating for dynamic astigmatism (see lines 4-6 of column 1).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include plural dynamic quadrupole lens QL1, as disclosed by Kimiya ('293), in the device of Kimiya ('152), in order to compensate for astigmatism of the electron beams.

Regarding claim 9, Kimiya et al. ('293) disclose that the dynamic quadrupole lens includes two or three charged elements (lines 19-26 of column 4). The same reason for combining art as in claim 8 applies.

Regarding claim 10, Kimiya et al. ('152) disclose all the limitations of claim 10, except for a dynamic focus lens disposed adjacent BFR and main lens disposed intermediate the dynamic focus lens and display screen.

However, Kimiya ('293) discloses an electron gun having a dynamic voltage (Vd) applied to Grid 3 and Grid 5 (lines 38-44 of column 7, see Fig 7B), thus forming a dynamic focus lens between grid 3 through grid 5 (see Fig 7B), disposed adjacent said BFR (GE section in Fig 3) and a main focus lens (EL, formed between grid 5 and grid 6 of Fig 7B), disposed intermediate said dynamic focus lens and the display screen (see Fig 3 and Fig 7B), this arrangement of dynamic voltage in synchronism with the

deflection magnetic field, to the grids compensates dynamic astigmatism (see lines 4-6 of column 1).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include dynamic voltage (AC voltage), in synchronism with the deflection magnetic field to the grids to form dynamic focus lens, as disclosed by Kimiya ('293), in the device of Kimiya ('152), in order to compensate for astigmatism of the electron beams.

Regarding claim 11, Kimiya et al. ('293) disclose that said second aligned apertures are disposed in second grids (G4 and G5) in said dynamic focus lens (lines 38-44 of column 7). The same reason for combining art as in claim 10 applies.

Regarding claim 12, Kimiya et al. ('293) teach that said electrostatic lens includes a dynamic quadrupole lens (QL1) and said second grids include a third grid (4) having a fixed focus voltage and fourth grid (3, 5) having a dynamic focus voltage (see Fig 7A, & 7B). The same reason for combining art as in claim 10 applies.

#### ***Allowable Subject Matter***

Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 15 is allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 13, the prior art of record neither teaches nor suggests the limitation that the each enlarged portion of the single common aperture of fourth grid is larger than an aligned beam passing apertures in the third grid wherein the fourth grid is disposed intermediate the third grid and the display screen.

Regarding claim 14, the prior art of record neither shows nor suggests the limitation that each enlarged portion of the single common aperture of fourth grid is smaller than an aligned beam passing apertures in the third grid wherein the third grid is disposed intermediate the fourth grid and the display screen.

Regarding claim 15, the prior art of record neither teaches nor suggests the limitation that the each spaced aperture in each of the third grids is larger than an aligned enlarged portion of the single common aperture in an associated fourth grid when the fourth grid is disposed intermediate the cathode and its associated third grid, and is smaller than an aligned enlarged portion of the single common aperture in an associated fourth grid when the third grid is disposed intermediate the cathode and its associated fourth grid.

Further regarding claims 13-15, applicant's argument, that Chen et al. (US 5055749) teach beam passing apertures of third grid and common aperture of fourth grid are of equal diameter, is persuasive.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

***Other Prior Art Cited***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure : Bae et al. (US 5281896); Chen et al. (US 5055749).

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Art Unit 2879